Community Analysis and Data Visualization

By Khaleel Hussaini and
Wesley Kortuem

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Health Services
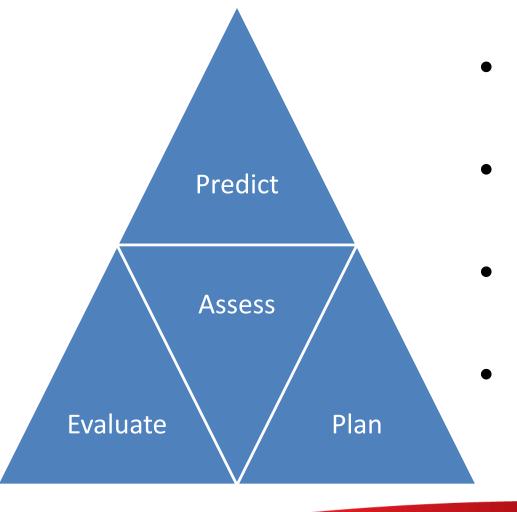
The Big Picture – Why now?

- Proliferation of geographic information system (GIS)

- An "opportunity" to examine spatio-temporal relationships of health and environment.

- Theoretical framework - "the circumstances in which people grow, live, work, and age, and the systems put in place to deal with illness" influence health inequity and/or health inequalities.

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Predict, Assess, Plan, Evaluate (PAPE)

- MIECHV

- SHA

- Cancer

- Data visualization

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How do we do it?

- Defining a "small-area" or a "community" to generate a health profile.

- Use of appropriate GIS techniques to aggregate data for statistical use.

- Use of appropriate health indicators to describe spatio-temporal, politico-legal, socio-economic variations.
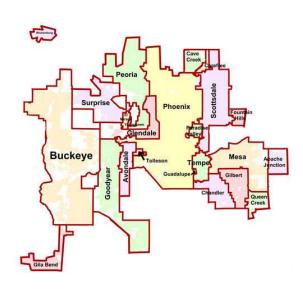
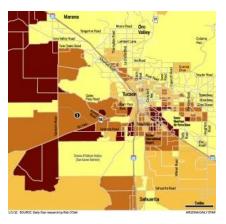- And keeping it meaningful, simple, and useful.

Small Area Geography

- Counties
- Tracts
- Zip Codes
- Cities

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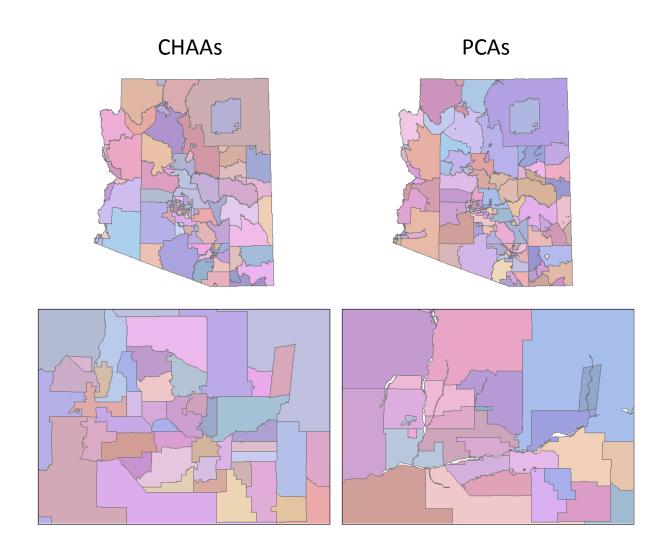Department of
Health Services

What about Primary Care Areas (PCAs)? and Community Health Analysis Areas (CHAAs)?

CHAAs

PCAs

CHAA Issues

2010 Census

Changing Communities

Medical Marijuana

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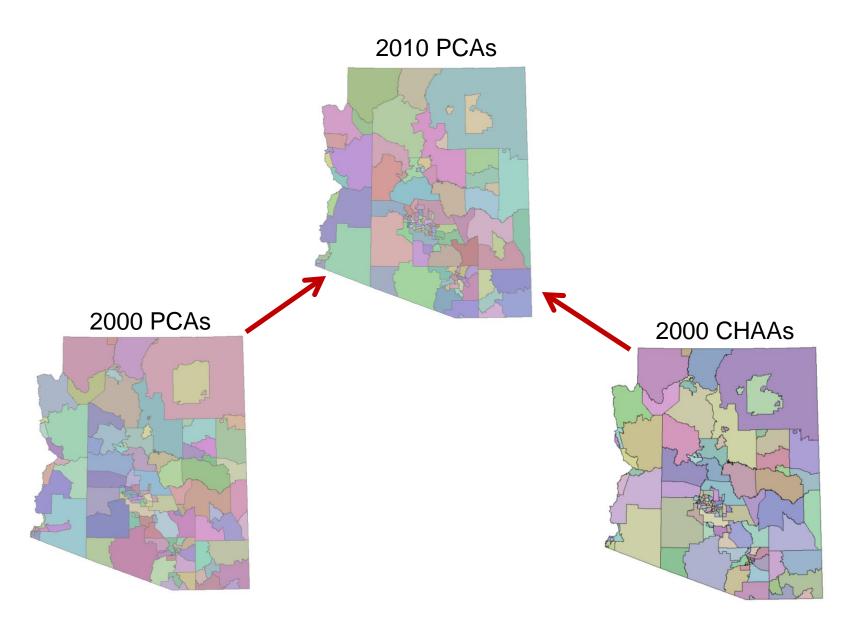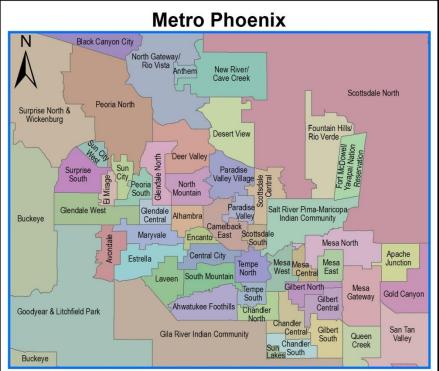*Health and Wellness for all Arizonans*

PCA Issues

- 2010 Census

- Communities have changed

- Population minimum and maximums to extreme

  – Some PCAs nearly ½ million

- Doesn't represent urban area communities well.
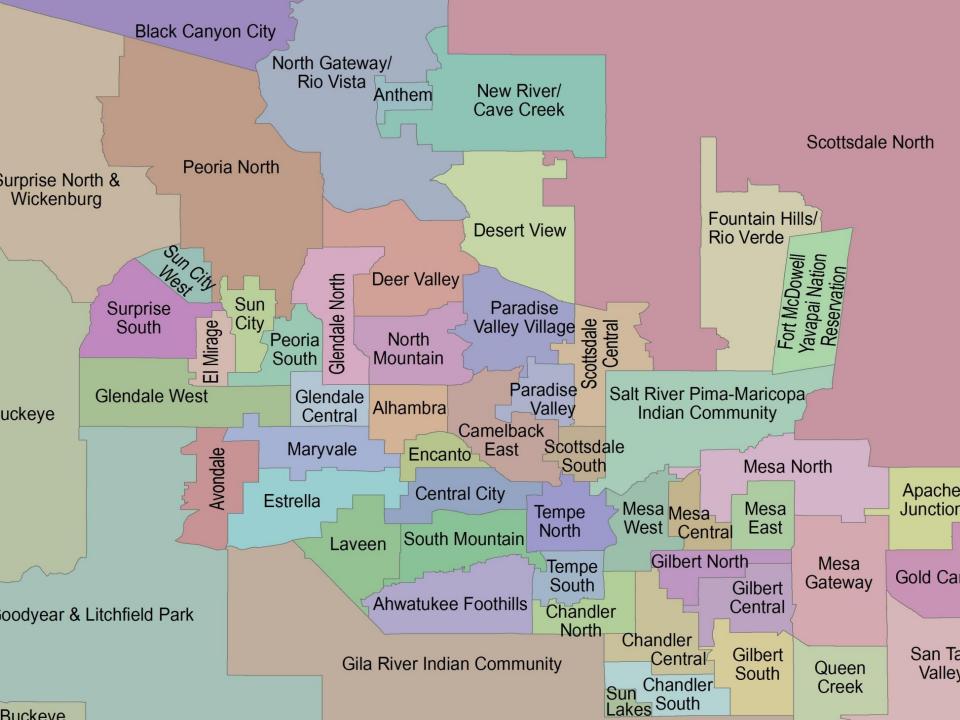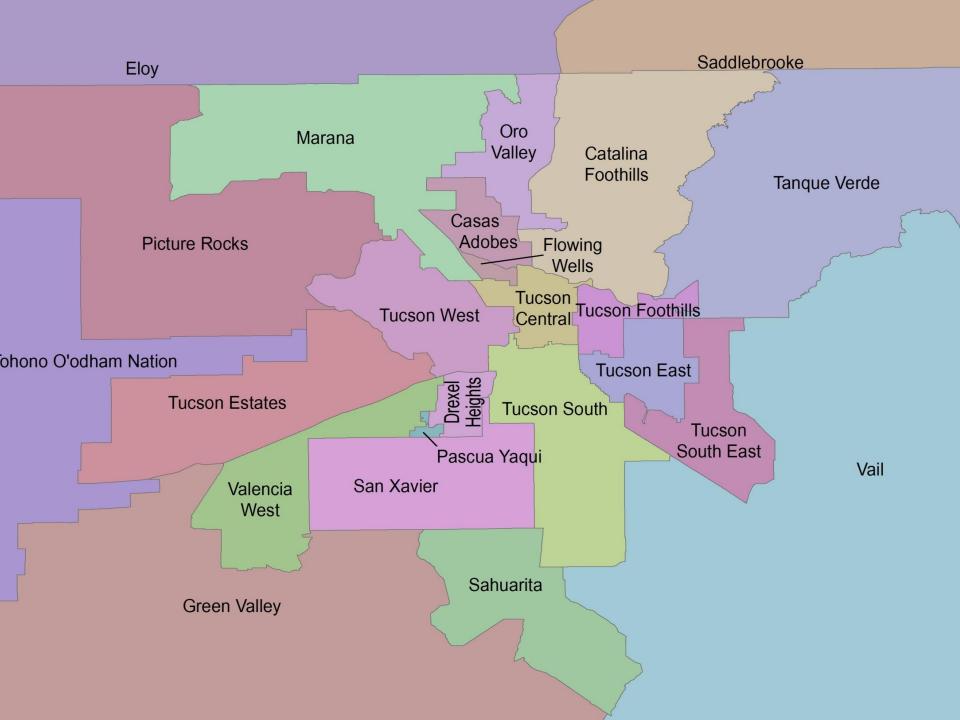
  – Homogeneity vs. Primary Care

Unifying PCAs and CHAAs

2010 PCAs

2000 PCAs

2000 CHAAs

Primary Care Areas

N

Colorado City
Page
Hopi Tribe
Navajo Nation
Grand Canyon
Hopi Tribe
Hu'alapai Tribe
Golden Valley
Kingman
Chino Valley
Flagstaff
Winslow
Bullhead City
Lake Havasu City
Prescott
Prescott Valley
Cottonwood Sedona
Williamson
Snowflake/Heber
Show Low
Springerville/Eager
Parker
Black Canyon City
Payson
White Mountain Apache Tribe
Colorado River Indian Tribe
Quartzsite
Surprise North & Wickenburg
Globe
Gold Canyon
San Carlos Apache Tribe
Morenci
Buckeye
Florence
Safford
Somerton
Fortuna Foothills
Maricopa
Casa Grande
Coolidge
Saddlebrooke
Thatcher
Yuma
Eloy
San Luis
Ajo
Tohono O'odham Nation
Benson
Willcox & Bowie
Green Valley
Rio Rico
Sierra Vista
Bisbee
Douglas & Pirtleville
Nogales

Map Date:
September 2013

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Metro Phoenix

N

Black Canyon City
North Gateway/Rio Vista
Anthem
New River/Cave Creek
Surprise North & Wickenburg
Peoria North
Scottsdale North
Desert View
Fountain Hills/Rio Verde
Sun City West
Sun City
Deer Valley
Surprise South
El Mirage
Peoria South
Glendale North
Paradise Valley Village
Scottsdale Central
Fort McDowell Yavapai Nation Reservation
Buckeye
Glendale West
North Mountain
Paradise Valley
Salt River Pima-Maricopa Indian Community
Glendale Central
Alhambra
Maryvale
Camelback East
Scottsdale South
Mesa North
Avondale
Encanto
Apache Junction
Estrella
Central City
Mesa West
Mesa Central
Mesa East
Laveen
South Mountain
Tempe North
Mesa Gateway
Gold Canyon
Goodyear & Litchfield Park
Ahwatukee Foothills
Tempe South
Chandler North
Gilbert North
San Tan Valley
Chandler Central
Gilbert Central
Gila River Indian Community
Chandler South
Gilbert South
Queen Creek
Buckeye
Sun Lakes

Metro Tucson

N

Marana
Oro Valley
Catalina Foothills
Tanque Verde
Picture Rocks
Casas Adobes
Flowing Wells
Tucson West
Tucson Central
Tucson Foothills
Tohono O'odham Nation
Tucson East
Tucson Estates
Tucson South
Drexel Heights
Pascua Yaqui
Tucson South East
Vail
Valencia West
San Xavier
Green Valley
Sahuarita

2010 PCAs

- Define **today's** communities.

- Maintain populations conducive to statistical analysis.

- Identify where people go for primary care.

- Are built with a repeatable rule based methodology.

PCA Rules

- PCAs are built from 2010 US Census Tracts.
  - Federal requirement.
- All PCAs have a 2010 population greater than 10,000 but less than 200,000.
- No PCA will have an area greater than 7500 square miles
- PCAs shall not cross county lines
- PCAs shall follow existing political boundaries as closely as possible.
- Every rural PCA must have a safety net facility.

Exceptions

- Tribal PCAs are exempt from population and area minimum and maximum rules.

- Tribal PCAs can cross county lines

- Based on size and homogeneity some communities were allowed to cross a county line.
    - Queen Creek
    - Sedona

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Community Boundaries

City of Phoenix, Arizona
Urban Villages Map

- Tribal Lands

- Village boundaries
  - Planning areas

- Census Designated Places (CDP)
  - Defined by the 2010 US Census
  - Includes incorporated places as well as other settled concentrations of people that are identifiable by name but not legally incorporated.
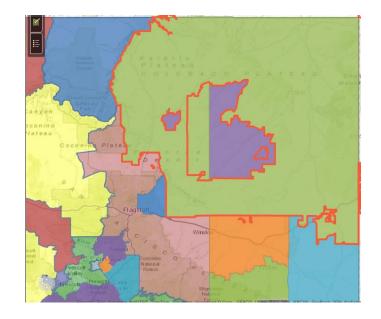
Population Compliance

- Communities must be split or combined to comply with population rules
  - Rural
    - Proximity to Safety Net Facilities or other communities
  - Urban
    - Demographics

Issues

- Tracts limit flexibility
  - Tribal Lands
    - Separate analysis by tribe.
- Fixed methodology restricts the use of local knowledge in favor of predefined rules.

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Facts about PCAs

- 126 communities (so are CHAAs)
  - The average PCA has a population of 50,730 and an area of 905 square miles
  - 55 Metro Phoenix PCAs
  - 20 Metro Tucson PCAs
  - At 199,814 Maryvale PCA has the largest population and Fort McDowell Yavapai is the smallest with a population of 971

Where do we go from here?

- Starting with 2012 data we are publishing BPHS data at PCA level.

- The following site is a draft of our bureau's vision for presenting PCA data for internal and external stakeholders.

- We will engage our stakeholders to seek their input on PCA data elements and site functionality.

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Data Visualization Options

- Maps
- Tables
- Graphs
- Charts
- Movies
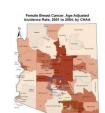
- Static
- Interactive
- Paper
- Digital
- Web or local

Figure 2. 2008-2013 Neonatal Abstinence Syndrome (NAS) Rates by Primary Care Area (PCA)

Rate per 1000 Hospital Births
- 0.72 - 1.84
- 1.85 - 3.21
- 3.22 - 5.61
- 5.62 - 8.82
- Count < 6

Map Date: May 2014

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Metro Phoenix

Metro Tucson

Source: Hussaini SK. Neonatal Abstinence Syndrome: 2008-2013 Overview. Research Brief, 2014.

Figure 4. Arizona Drug and Alcohol Exposed Newborns by Primary Care Areas (PCA) 2008-2013
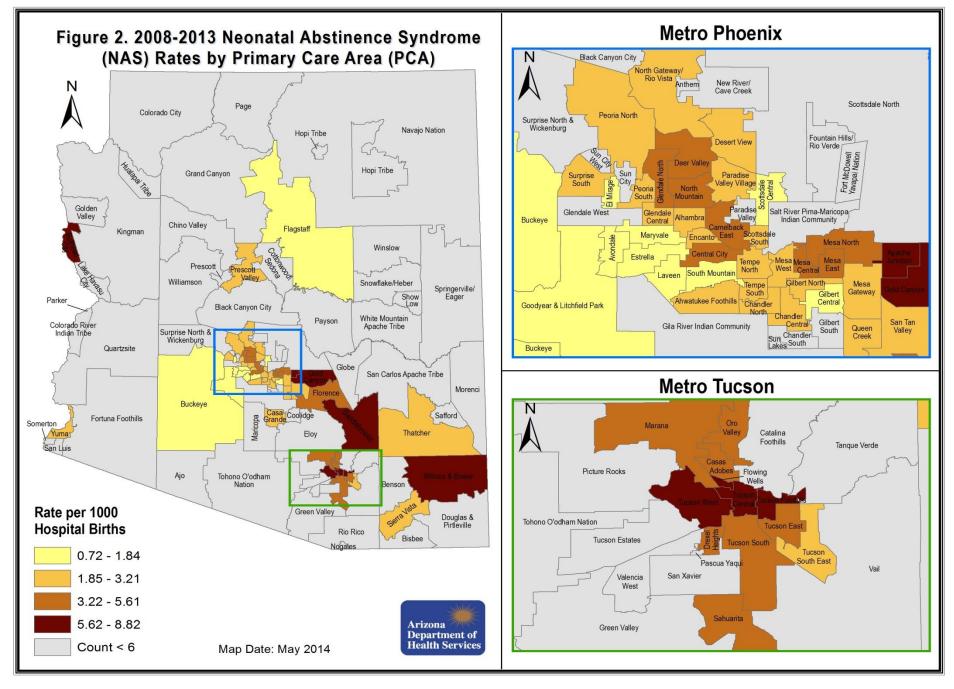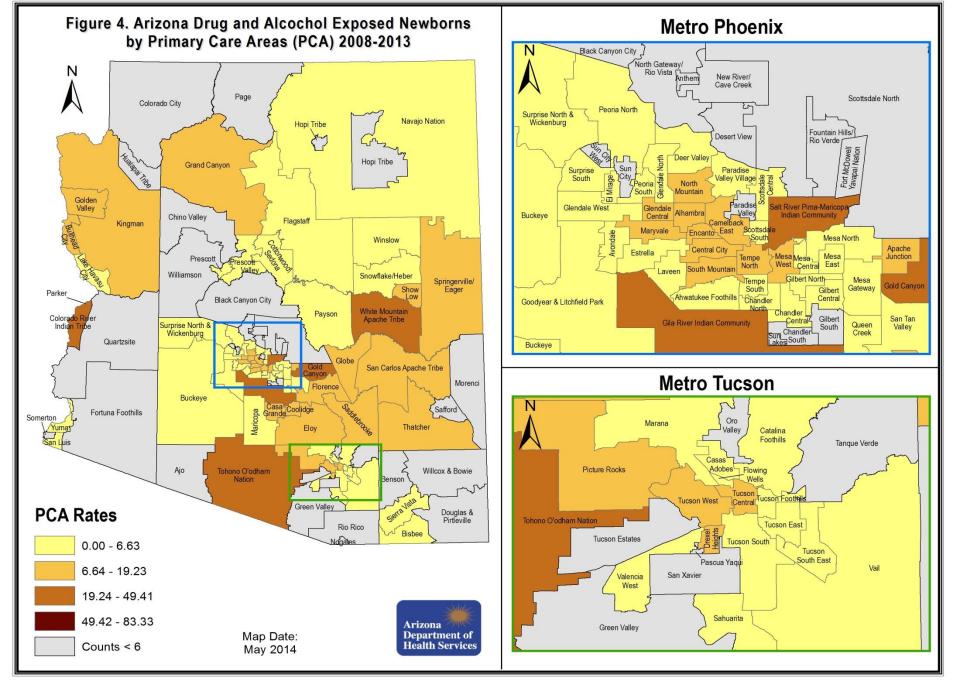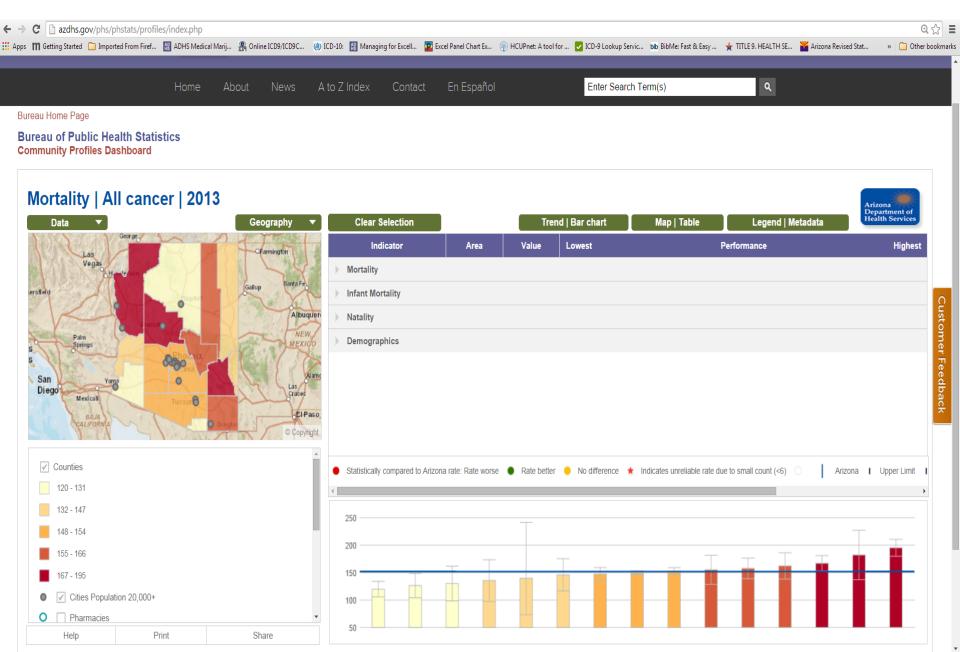
Source: Hussaini SK. Neonatal Abstinence Syndrome: 2008-2013 Overview. Research Brief, 2014.

So What's This

Need more info….

- Follow the series with our Director

- Check out our video blog

Contact email for PCAs

wes.kortuem@azdhs.gov tracy.lenartz@azdhs.gov

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